

REMARKS

Claims 41-52, 55-66, 69-80, 83-94 and 97-114 remain pending. New claims 115-122 have been presented for consideration by the Examiner. The Examiner allowed claims 41, 55, 69, and 83. Claims 42-44, 46-48, 50, 52, 56-58, 60-62, 64, 70-72, 74-76, 78-80, 84-86, 88-90, 92, 94, 97, 99, 101-105, 107-109, 111, 113 and 114 have been amended in order to more particularly point out and distinctly claim that which Applicant regards as being inventive, while claims 45, 49, 51, 59, 63, 65, 73, 77, 87, 91 and 93 have been canceled. All of the remaining claims are believed to be allowable over the art of record, as amended, for reasons given below. Applicant hereby reserves the right to present claims of the original scope in continuing applications. Applicant appreciates the Examiner's consideration of the Application.

The § 103 Rejections

The Examiner rejected claims 42-52, 56-66, 70-80, 84-94, 98, 100, 102 and 104 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent no. 4,914,433 issued to Galle. Applicant respectfully disagrees, as will be further discussed below.

Initially considering independent claim 42, as amended, an arrangement is provided for use in a drilling system for performing underground boring. The system includes a drill rig and a boring tool which is configured for moving through the ground under control of the drill rig to form an underground bore. The boring tool includes a locating signal transmitter which transmits a locating signal for locating an underground position of the boring tool. A detection arrangement is provided at the drill rig for monitoring at least one operational parameter to produce a data signal relating to at least one of a utility to be installed in the underground bore, the drill rig and the boring tool. A portable device is configured for movement by an operator and for receiving the data signal relating to the operational parameter for use by the portable device. The portable device includes a locating section for receiving the locating signal, directly from the boring tool, for use in identifying the underground position of the boring tool. A communication arrangement is usable for transferring the data signal from the drill rig to the portable device. This claim has been amended in order to emphasize that the boring tool transmits the locating signal and the portable device receives the locating signal directly from the boring tool. It is important to understand that, for purposes of the claims presented here, the locating signal is not among the parameters that is monitored by the detection arrangement at the drill rig, as will be further discussed.

Turning now to the Galle patent, a boring system is described, however, the patent is specifically directed to a wire-in-pipe arrangement for transferring information up the drill string to its above ground end. It is noted that Applicant finds no teaching in the patent which reasonably suggests a locating signal, as claimed.

With respect to the locating signal, the Examiner states that;

Applicant argues that the locating signal cannot be transferred up the drill string. The examiner fails to see what precludes this from happening. Applicant alleges that the portable device needs to move to detect the location signal. This is not true.

Applicant respectfully disagrees with the Examiner's position. As mentioned above, in the claims presented herein, the locating signal is not among the parameters that can be transmitted up the drill string. Again, it is noted that the boring

tool includes a locating signal transmitter which transmits the locating signal through the ground. The portable device includes a locating section for receiving the locating signal in order to identify the underground position of the boring tool. It is noted that the description of this configuration, provided in the response of November 21, 2003 remains applicable and will be supplemented below.

In the outstanding Office Action, the Examiner has referred Applicant to US patent 5,337,002 (hereinafter the '002 patent), as describing a locating signal. It is noted that this patent is commonly assigned to Applicant, with the present application, and is among the incorporated Mercer patents. Accordingly, Applicant will further describe the locating signal and its nature with reference to the '002 patent, in conjunction with the specification of the present application, in order to facilitate an understanding on behalf of the Examiner with respect to this technology.

In the claims presented herein, the locating signal must be used directly by the portable locator following transmission from the transmitter in the boring tool, it can not be transferred up the drill string, as asserted by the Examiner. The boring tool, in transmitting the locating signal therefrom, establishes a pattern of magnetic field flux lines at the surface of the ground. This pattern relates in certain ways to the location of the boring tool. For example, locate points are formed in the pattern which exhibit a vertical flux line orientation. It should be appreciated that these locate points, having a vertical flux line orientation, are completely unique within the overall pattern of flux lines at the surface of the ground. The '002 patent applies the term "fore and aft signal balance points" (col. 25, ln. 42-43) or, more simply, "balance points" to the locate points. The arrangement of the locate points with respect to a position on the surface of the ground, that is above the transmitter, and to the transmitter itself, is described at col. 25, ln. 23-46. The locating field is depicted in Figure 2 of the present application and in Figure 9 of the '002 patent. This latter figure illustrates emanation of the locating signal from a housing, associated in the ground with the drill head and which surrounds the transmitter. By establishing the position of such locate points at the surface of the ground, the position of the boring tool can be determined, as well as determining the location of the overhead point, directly above the drill head.

Applicant is unaware of any way in which this type of locating signal could be transferred up the drill string, as asserted by the Examiner, since the required flux line pattern would not be established at the surface of the ground and in a positional relationship centered at the boring tool. Particularly, if the locating signal is transmitted, for example, from the drill rig, one would be able to apply the described technique to locate the drill rig. The flux line pattern must be emanated from the object which is to be located. In the present example, the flux line pattern must be emanated from the boring tool into the surrounding ground.

The Examiner states that Applicant asserts that "the portable device needs to move to detect the location signal." Applicant disagrees with this characterization and is unaware of making any such assertion. The locating signal is an electromagnetic signal that varies with time and, hence, will induce a voltage in a stationary coil. That characteristic, however, does not allow one to locate the transmitter, since even finding a point of maximum signal strength necessitates comparison of that signal strength to other signal strengths. What is asserted is movement of the portable detector for purposes of finding the transmitter, not for merely detecting the locating field. Using the technology of the '002 patent, the portable locator is moved to resolve the position of the transmitter within the overall transmitter flux. Such movement is typically executed in a methodical procedure which is used to identify the position of the boring tool based on the flux line

pattern and signal strength. A number of such procedures are described in the '002 patent such as, for example, at col. 22, ln. 4-20 and col. 24, ln. 30-58.

As described in the immediately preceding response, suggesting a modification of Galle which would transfer the locating signal up the drill string clearly results in an inoperable system, since one could not use such a system to locate the boring tool. As claimed, the locating signal, having been transmitted from the boring tool into the surrounding ground, must then be measured by the portable device in order to determine the position of the boring tool. It is again submitted that Galle is ineffective as a reference under § 103 for this reason standing on its own.

It is further submitted that the Galle system, as illustrated in figure 4 of the patent, is devoid of any need for a locating signal. Figure 4 illustrates a system which forms a vertical borehole. Applicant finds no mention in the patent of any capability to form any other type of borehole. Accordingly, the position of the drill head is known simply by knowing the length of the drill string. In view of the Galle patent, one of ordinary skill in the art would have no motivation to modify the Galle drilling system in the suggested manner, since the position of the boring tool is already known. Monitoring drill string length, so as to ascertain the depth coordinate, is trivial. It is submitted that claim 42 is allowable over Galle for this reason standing on its own.

The Examiner asserts that Applicant alleges that "locating signals are not well-known and old in the art." Applicant respectfully disagrees with this statement. Applicant is unaware of making any such statement, particularly in view of the fact that the Mercer patents use such a locating arrangement. Applicants consider, however, that the prior art fails to disclose, teach, or suggest, in any reasonable combination, the combined limitations which are present in claim 42. For all of the foregoing reasons, Applicant respectfully requests allowance of claim 42, as amended.

Independent claim 43 has been amended to include a display arrangement and is, therefore, believed to be allowable over the art of record at least for the reasons expressed by the Examiner with respect to allowed claims 41, 55, 69 and 83. Accordingly allowance of claim 43, as amended, is respectfully requested.

Independent claim 44 has been amended to include the limitations of now canceled claim 45 and is, therefore, believed to be allowable. The added limitations require that the portable device is configured for providing at least a selected one of an audio indication and a visual indication in response to receipt of a warning. Applicant notes that amended claim 44, now including the limitations of claim 45, encompasses limitations which are reflected by those limitations that are present in the allowed claims and is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 44, as amended.

Independent claim 46 has been amended to include an indication arrangement, in the portable locator, configured for using a warning to generate at least one of an audio indication and a visual indication in response to issuing the warning. Since these additional limitations, like those present in amended claim 44, are not specifically addressed by the current rejections and Applicant finds no reasonable basis for such a rejection in the art of record, it is submitted that claim 46 is also allowable. Accordingly, allowance of claim 46, as amended, is respectfully requested.

Independent claim 47 has been amended to recite that an indication is provided as at least one of an audio indication and a visual indication. As discussed above with respect to claim 44, it is believed that this claim is now allowable over the art of record at least for the reason that Galle appears to be devoid of any teaching, disclosure or reasonable suggestion of the combination of limitations now present in claim 47, as amended. Accordingly, allowance of claim 47 is respectfully requested.

Independent claim 48 has been amended to recite additional limitations including those of now canceled claim 49. In particular, the portable device is configured to provide an operator warning as at least one of an audio indication and a visual indication based on the status of the drilling mud. It is considered that amended claim 48 encompasses additional limitations which are reflected by those limitations that are present in the allowed claims. Applicant is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 48, as amended.

Independent claim 50 has been amended to include the limitations that the portable device is configured for indicating that the selected minimum bend radius is being violated as previously encompassed by now canceled claim 51 and to further include the limitation that this is accomplished using at least one of an audio indication and a visual indication. It is considered that claim 50 encompasses additional limitations which are reflected by those limitations that are present in the allowed claims. Applicant is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 50, as amended.

Dependent claim 52, as amended, is directly dependent from and therefore includes the limitations of claim 50. Accordingly, it is respectfully submitted that claim 52 is also patentable over the art of record for at least the reasons set forth above with respect to claim 50. Further, claim 52 places additional limitations on claim 50 which, when considered in its light, further distinguish the claimed invention from the art of record. For example, claim 52 recites that the selected minimum bend radius is a greater one of the minimum bend radius of the drill string and the minimum bend radius of the utility and the portable device is configured to provide an indication of violation of the greater minimum bend radius.

Independent claim 56 has been amended to reflect the limitations of amended claim 42, but in method form. Accordingly, the arguments relating to the patentability of amended claim 42 over the art of record are considered to be equally applicable with respect to the patentability of claim 56. For at least these reasons, allowance of amended claim 56 is respectfully requested.

Independent claim 57 has been amended to reflect the limitations present in amended claim 43, but in method form. Accordingly, the arguments relating to the patentability of amended claim 43 over the art of record are considered to be equally applicable with respect to the patentability of claim 57. For at least these reasons, allowance of amended claim 57 is respectfully requested.

Independent claim 58 has been amended to include the limitations that the portable device is configured for
DCI-P015C2 21 of 28 USSN 09/898,989

indicating the receipt of a warning at the portable device using at least a selected one of an audio indication and a visual indication, as previously encompassed by now canceled claim 59 and to further include the limitation that this is accomplished using at least one of an audio indication and a visual indication. Applicant notes that amended claim 58, now including the limitations of canceled claim 59, reflects additional limitations that are present in the allowed claims and is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 58, as amended.

Independent claim 60 has been amended to emphasize that the warning is issued to the operator. Applicant considers that the issuance of a warning comprises a form of indication and, at least in this way, reflects the limitations present in the allowed claims. Since Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise, allowance of claim 60, as amended, is respectfully requested.

Independent claim 61 has been amended to present additional limitations which reflect certain limitations of allowed claim 55. Specifically, the data signal is used for a display presentation. For at least this reason, allowance of amended claim 61 is respectfully requested.

Independent claim 62 has been amended to recite additional limitations including those of now canceled claim 63. In particular, the portable device is configured to provide an operator warning as at least one of an audio indication and a visual indication based on the status of the drilling mud. It is considered that the additional limitations, present in amended claim 62, reflect certain limitations that are present in the allowed claims. Applicant is unable to find any rationale in the Office Action with respect to rejections relating specifically to these additional limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 62, as amended.

Independent claim 64 has been amended to include using the portable device for indicating that the selected minimum bend radius is being violated, as previously encompassed by now canceled claim 65 and to further include the limitation that this is accomplished using at least one of an audio indication and a visual indication. It is considered that the additional limitations present in amended claim 64 encompass limitations which are reflected by those limitations that are present in the allowed claims. Applicant is unable to find any rationale in the Office Action with respect to any rejections relating to these additional limitations in claim 64. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 64, as amended.

Dependent claim 66 is directly dependent from and therefore includes the limitations of claim 64. Accordingly, it is respectfully submitted that claim 66 is also patentable over the art of record for at least the reasons set forth above with respect to claim 64. Further, claim 66 places additional limitations on claim 64 which, when considered in its light, further distinguish the claimed invention from the art of record. For example, claim 66 recites that the selected minimum bend radius is a greater one of the minimum bend radius of the drill string and the minimum bend radius of the utility and the portable device is configured to provide an indication of violation of the greater minimum bend radius.

Claim 70 is an independent claim which has been amended to reflect the limitations of amended claim 42. For this reason, it is submitted that the arguments made above in favor of the patentability of claim 42 over the art of record are equally applicable to the patentability of claim 70. Accordingly, allowance of claim 70 is respectfully requested.

Independent claim 71 has been amended to recite that the portable device includes a display arrangement configured for using the data signal to produce a display to the operator of the portable device so as to reflect the limitations of the allowed claims. Accordingly, it is believed that this claim is now allowable over the art of record at least for the reason that Galle appears to be devoid of any teaching, disclosure or reasonable suggestion of the combination of limitations now present in amended claim 71. Accordingly, allowance of claim 71 is respectfully requested.

Independent claim 72 has been amended to include the limitations of now canceled claim 73 in providing at least one of an audio indication and a visual indication responsive to receipt of a warning.

Applicant notes that amended claim 72, now including the limitations of claim 73, encompasses limitations which are reflected by those limitations that are present in the allowed claims and is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 72, as amended.

Independent claim 74 has been amended to include a display arrangement configured for using the data signal for display to the operator of the portable device. Since this additional limitation reflects certain limitations present in the allowed claims, it is believed that claim 74 is allowable for at least this reason. Accordingly, Applicant respectfully requests allowance of claim 74, as amended.

Independent claim 75 has been amended to emphasize that an indication is provided as at least one of an audio indication and a visual indication. Accordingly, it is believed that claim 75 is allowable since the art of record fails to teach, disclose or reasonably suggest the combination of limitations that are now encompassed by amended claim 75. Accordingly, allowance of claim 75 is respectfully requested.

Independent claim 76 has been amended to include the limitations of now canceled claim 77, in providing an operator warning. Claim 76 has been further amended to include providing this warning as at least one of an audio indication and a visual indication. Applicant notes that amended claim 76, now including the limitations of claim 77, encompasses limitations which are reflected by certain limitations that are present in the allowed claims and is unable to find any rationale in the Office Action with respect to any rejections relating to these specific limitations. Further, Applicant finds no teaching, disclosure or reasonable suggestion of any form of indication in the Galle disclosure, visual or otherwise. Accordingly, for at least this reason, Applicant respectfully requests allowance of claim 76, as amended.

Independent claim 78 has been amended to include a display arrangement configured for using the data signal for display to the operator of the portable device. Since this additional limitation reflects the limitations present in the allowed claims, it is believed that claim 78 is allowable for at least this reason. Accordingly, Applicant respectfully requests allowance of claim 78, as amended.

Claims 79 and 80 are dependent claims which depend directly or indirectly from claim 78, thereby including the limitations of claim 78. Accordingly, it is respectfully submitted that claims 78 and 79, as amended, are also patentable over the art of record for at least the reasons set forth above with respect to claim 78. Further, amended claims 79 and 80 place additional limitations on claim 78 which, when considered in light of claim 78, further distinguish the claimed invention from the art of record.

For example, claim 79 requires that the portable device is configured for indicating that the selected minimum bend radius is being violated, using the display arrangement. As another example, claim 80 recites that the selected minimum bend radius is a greater one of the minimum bend radius of the drill string and the minimum bend radius of the utility and the portable device is configured to provide an indication of violation of the greater minimum bend radius, using the display arrangement.

Independent claim 84 has been amended, similarly to the amendments made in claim 42, to emphasize that the locating signal is received directly from the boring tool transmitter, but in method form. Accordingly, the arguments relating to the patentability of amended claim 42 over the art of record are considered to be equally applicable with respect to the patentability of claim 84. For at least these reasons, allowance of amended claim 84 is respectfully requested.

Independent claim 85 has been amended to require providing a display presentation to the operator of the portable device using the data signal in the manner of allowed claim 55. Since this additional limitation reflects the limitations present in the allowed claim, it is believed that claim 85 is allowable for at least this reason. Accordingly, Applicant respectfully requests allowance of claim 85, as amended.

Independent claim 86 has been amended to include the limitations of now canceled claim 87 wherein the receipt of a warning at the portable device is used to generate at least one of an audio indication and a visual indication. Since these additional limitations, like those present in amended claim 44, have not been addressed in the current rejections and Applicant finds no reasonable basis for such a rejection in the art of record, it is submitted that claim 86 is allowable. Accordingly, allowance of claim 86, as amended, is respectfully requested.

Independent claim 88 has been amended to include additional limitations which reflect those limitations added to amended claim 46, but in method form. Accordingly, the arguments made above with respect to the patentability of claim 46 over the art of record are equally applicable with respect to the patentability of claim 88. For at least this reason, allowance of claim 88, as amended, is respectfully requested.

Independent claim 89 has been amended to include additional limitations which reflect certain limitations that are present in allowed claim 55. Accordingly, for at least this reason, it is submitted that claim 89 is now allowable in the art of record. Therefore, allowance of amended claim 89 is respectfully requested.

Independent claim 90 has been amended to include the limitations of now canceled claim 91 wherein an operator warning is issued to the operator using the portable device based on the status of the drilling mud. Further, the operator warning is issued as at least one of an audio indication and a visual indication. Applicant can find no rationale in the present rejections with respect to these features. Moreover, applicant finds no teaching, disclosure or reasonable suggestion in the art

of record with respect to providing such indications and it is considered that these features resemble the features present in the claims that have been indicated as allowed by the Examiner, amended claim 90 is likewise submitted to be allowable. For at least these reasons, allowance of claim 90 is respectfully requested, as amended.

Independent claim 92 has been amended to include the limitations of now canceled claim 93 wherein the portable device is used to indicate that the selected minimum bend radius is being violated. Applicant can find no rationale in the present rejections with respect to this indication feature. Moreover, applicant finds no teaching, disclosure or reasonable suggestion in the art of record with respect to providing such indications and it is considered that these features resemble the features present in the claims that have been indicated as allowed by the Examiner. Accordingly, amended claim 92 is likewise submitted to be allowable. For at least these reasons, allowance of claim 92 is respectfully requested, as amended.

Dependent claim 94 is directly dependent from and therefore includes the limitations of claim 92. Accordingly, it is respectfully submitted that claim 94 is also patentable over the art of record for at least the reasons set forth above with respect to claim 92. Further, claim 94, as amended, places additional limitations on claim 92 which, when considered in its light, further distinguish the claimed invention from the art of record. For example, amended claim 94 requires selecting the minimum bend radius as a greater one of the minimum bend radius of the drill string and the minimum bend radius of the utility and the portable device is configured to provide an indication of violation of the greater minimum bend radius as at least one of an audio indication and a visual indication. Applicant respectfully submit that this combination of features is not reasonably taught or suggested by the art of record. Accordingly, allowance of amended claim 94 is respectfully requested.

Dependent claims 98 and 100 will be addressed below, since they depend directly from claims 97 and 99, respectively.

Independent claim 101 has been amended to include certain features that are present in allowed claim 41. Specifically, a display arrangement uses the data signal at the portable device for display to the operator of the portable device. Accordingly, it is submitted that claim 101 is also allowable over the art of record. For at least this reason, allowance of claim 101 is respectfully requested.

Independent claim 103 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device. Accordingly, it is submitted that claim 103 is also allowable over the art of record. For at least this reason, allowance of claim 103 is respectfully requested.

Dependent claim 104 is directly dependent from and therefore includes the limitations of claim 103. Accordingly, it is respectfully submitted that claim 104 is also patentable over the art of record for at least the reasons set forth above with respect to claim 103. Further, claim 104 places additional limitations on claim 103 which, when considered in its light, further distinguish the claimed invention from the art of record.

The Examiner rejected claims 97, 99, 101, 103 and 105-114 under 35 U.S.C. § 103(a) as being unpatentable over Galle. Applicant respectfully disagrees, as will be further discussed below.

Independent claim 97 has been amended in a way which reflects certain limitations that are present in allowed claim 41. Specifically, a display arrangement is configured for using the data signal for display to the operator of the portable device. For at least this reason, allowance of claim 97 is respectfully requested.

Dependent claim 98 is directly dependent from and therefore includes the limitations of claim 97. Accordingly, it is respectfully submitted that claim 98 is also patentable over the art of record for at least the reasons set forth above with respect to claim 97. Further, claim 98 places additional limitations on claim 97 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 99 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device. Accordingly, it is submitted that claim 99 is also allowable over the art of record. For at least this reason, allowance of claim 99 is respectfully requested.

Dependent claim 100 is directly dependent from and therefore includes the limitations of claim 99. Accordingly, it is respectfully submitted that claim 100 is also patentable over the art of record for at least the reasons set forth above with respect to claim 99. Further, claim 100 places additional limitations on claim 99 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 101 has been amended to include certain features that are present in allowed claim 41. Specifically, a display arrangement uses the data signal at the portable device for display to the operator of the portable device. Accordingly, it is submitted that claim 101 is also allowable over the art of record. For at least this reason, allowance of claim 101 is respectfully requested.

Independent claim 103 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device. Accordingly, it is submitted that claim 103 is also allowable over the art of record. For at least this reason, allowance of claim 103 is respectfully requested.

Independent claim 105 has been amended to include certain features that are present in allowed claim 41. Specifically, a display arrangement uses the data signal at the portable device for display to the operator of the portable device. Accordingly, it is submitted that claim 105 is also allowable over the art of record. For at least this reason, allowance of claim 105 is respectfully requested.

Dependent claim 106 is directly dependent from and therefore includes the limitations of claim 105. Accordingly, it is respectfully submitted that claim 106 is also patentable over the art of record for at least the reasons set forth above with respect to claim 105. Further, claim 106 places additional limitations on claim 105 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 107 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device.

Accordingly, it is submitted that claim 107 is also allowable over the art of record. For at least this reason, allowance of claim 107 is respectfully requested.

Dependent claim 108 is directly dependent from and therefore includes the limitations of claim 107. Accordingly, it is respectfully submitted that claim 108 is also patentable over the art of record for at least the reasons set forth above with respect to claim 107. Further, claim 108 places additional limitations on claim 107 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 109 has been amended to include certain features that are present in allowed claim 41. Specifically, a display arrangement uses the data signal at the portable device for display to the operator of the portable device. Accordingly, it is submitted that claim 109 is also allowable over the art of record. For at least this reason, allowance of claim 109 is respectfully requested.

Dependent claim 110 is directly dependent from and therefore includes the limitations of claim 109. Accordingly, it is respectfully submitted that claim 110 is also patentable over the art of record for at least the reasons set forth above with respect to claim 109. Further, claim 110 places additional limitations on claim 109 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 111 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device. Accordingly, it is submitted that claim 111 is also allowable over the art of record. For at least this reason, allowance of claim 111 is respectfully requested.

Dependent claim 112 is directly dependent from and therefore includes the limitations of claim 111. Accordingly, it is respectfully submitted that claim 112 is also patentable over the art of record for at least the reasons set forth above with respect to claim 111. Further, claim 112 places additional limitations on claim 111 which, when considered in its light, further distinguish the claimed invention from the art of record.

Independent claim 113 has been amended to include certain features that are present in allowed claim 41. Specifically, a display arrangement uses the data signal at the portable device for display to the operator of the portable device. Accordingly, it is submitted that claim 113 is also allowable over the art of record. For at least this reason, allowance of claim 113 is respectfully requested.

Independent claim 114 has been amended to include certain features that are present in allowed claim 55. Specifically, the data signal is used at the portable device for a display presentation to the operator of the portable device. Accordingly, it is submitted that claim 114 is also allowable over the art of record. For at least this reason, allowance of claim 114 is respectfully requested.

As noted, with respect to a number of original claims including features relating to providing indications and warnings, the outstanding Office Action appears to be silent. These claims include, for example, original claims 44, 46, 47, 49, 51, 59, 60, 65, 74, 75, 88, 91 and 94. Accordingly, some of these claims have been canceled with their associated

limitations being presented in their parent claim. Further, other claims have been amended in a way which additionally presents these features. Applicant submits that all of these claims are allowable, however, in view of the allowed claims. In the event that the Examiner disagrees, clarification is respectfully requested. In view of this confusion, it is respectfully requested that an Office Action responsive hereto, if it is not an allowance, should not be a Final Action.

For the foregoing reasons, it is respectfully submitted that all of the Examiner's objections have been overcome and that the application is in condition for allowance. Hence, allowance of these claims and passage to issue of the application are solicited.

If the Examiner has any questions concerning this case, the Examiner is respectfully requested to contact me at the number set out below.

Respectfully submitted,



Michael M. Pritzkau
Reg. No. 37,913

13337 Misty Street
Broomfield, CO 80020
Telephone: 303-410-9254